

REMARKS

The Applicant respectfully requests reconsideration in view of the following remarks and amendments. Claims 1, 3, 7, 8, 12, and 19 have been amended. No claims have been cancelled. No claims have been added. Accordingly, claims 1-32 are pending in the Application.

I. Claim Rejections under 35 U.S.C. § 103

Claims 12-13, 19, 25-27, 29-31 are rejected under 35 U.S.C. §102(a) as being unpatentable over Applicant's Admitted Prior Art ("AAPA") in view U.S. Patent No. 6,810,084 by Jun et al. ("Jun"). Claims 1-3, 7-8, 11, 14, 20, 28 and 32 are rejected under 35 U.S.C. §103(a) as being unpatentable over AAPA in view of U.S. Patent No. 6,973,121 issued to Eberlein et al. ("Eberlein") and Jun. Claims 4-6, 15-18, and 21-24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPA, Jun and Eberlein as applied to claims 3, 14, and 20 above, and further in view of U.S. Patent Application No. 2002/0154247 by Ghosh et al. ("Ghosh") and U.S. Patent No. 5,502,506 issued to Choi ("Choi"). Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA, Jun and Eberlein as applied to claim 7 above, and further in view of Ghosh.

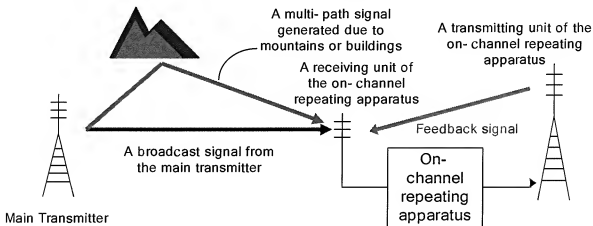
To determine obviousness of a claim: (1) factual findings must be made under the factors set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966); and (2) the analysis supporting the rejection under 35 U.S.C. § 103 should be made explicit and there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. See MPEP §§ 2141(II), 2141(III), and 2142; KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385, 1396; see e.g., MPEP § 2143 (providing a number of rationales which are consistent with the proper "functional approach" to the determination of obviousness as laid down in Graham).

In regards to claim 1, this claim has been amended to recite "an equalizing unit for removing a predetermined signal generated between the main transmitter and the on-channel repeater from the converted baseband signal, wherein the predetermined signal includes a feedback signal generated due to low isolation of transmission or reception antennas" (emphasis added). These amendments are supported, for example, by original claim 3 of the current Application. The Applicants submit that the cited prior art fails to disclose these elements of amended claim 1. Specifically, the prior art fails to disclose an equalizing unit as recited in

amended claim 1 which removes a feedback signal generated due to low isolation of transmission or reception antennas. The deficiencies of the prior art will be discussed in detail below.

The figure shown below depicts a feedback signal and an equalizing unit according to amended claim 1.

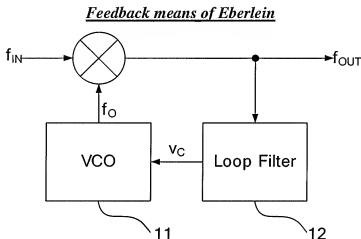
A Feedback Signal and an Equalizing Unit of the Present Invention



As shown above, a signal transmitted from a transmitting unit is inputted to a receiving unit because the isolation between the transmitting unit and the receiving unit is not enough. This signal is a feedback signal. A multi-path signal is thereafter generated when a broadcast signal from the main transmitter is reflected by mountains or buildings. The multi-path signal is identical to the broadcast signal except amplitude and delay of the two signals are different.

The equalizing unit of amended claim 1 removes a noise signal and the multi-path signal which are generated by a transmission line between the main transmitter and the on-channel repeating apparatus and the feedback signal caused by isolation between the transmitting unit and the receiving unit. Accordingly, the equalizing unit can recognize and remove the feedback signal when the feedback signal is identical with the broadcast signal received by the receiving unit except for a difference in amplitude and delay. However, a conventional repeater as shown in Figure 6 of the current Application cannot recognize and remove the feedback signal because it has an FEC decoder (605) and an FEC encoder (606). In particular, FEC decoder (605) and FEC encoder (606) make the feedback signal different from the broadcast signal (i.e. causing so-called ambiguity.) Thus, the conventional repeater cannot be used as an on-channel repeater, but the repeating apparatus of amended claim 1 can be used as an on-channel repeater.

In rejecting the elements of claim 3, which are now incorporated into amended claim 1, the Examiner relies on Eberlein to allegedly disclose “an equalizing unit for removing a predetermined signal generated between the main transmitter and the on-channel repeater from the converted baseband signal, wherein the predetermined signal includes a feedback signal generated due to low isolation of transmission or reception antennas” (emphasis added); however, the Applicants have been unable to locate any sections of Eberlein which teach or suggest these elements of amended claim 1. The figure below shows a feedback means as disclosed by Eberlein.

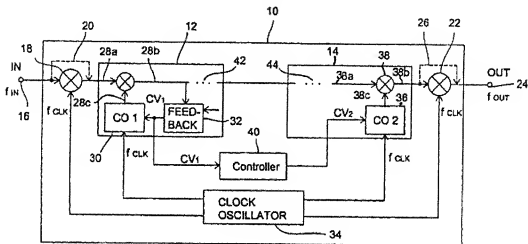


Specifically, Eberlien discloses a structure of a general PLL (Phase Locked Loop) for frequency or phase synchronization. f_{IN} and f_O are inputted to a multiplier and the multiplier outputs f_{OUT} by multiplying f_{IN} and f_O . f_O inputted to a loop filter (12) and the loop filter (12) outputs V_C in which a high frequency component is removed. Using the value of V_C , VCO (Voltage Controlled Oscillator, 11) controls a predetermined range of frequencies and outputs f_O . However, the PLL of Eberlien fails to disclose a predetermined signal that includes a feedback signal generated due to low isolation of transmission or reception antennas, because Eberlien is silent as to including such a feedback signal.

Additionally, Fig.1 of Eberlein, provided below for reference, shows a general block diagram of an repeater system. In Fig. 1, a closed loop (12) comprising multiplier and FEEDBACK (32) is generally the same as the structure of the general PLL shown above. Only the name of Loop Filter (12) is changed with FEEDBACK (32). In the same manner, VCO(11) in the figure above is changed to CO 1(Controllable Oscillator 1, 30) in Fig. 1. Thus, for at least the same reasons, Eberlein fails to disclose a predetermined signal that includes a feedback signal

generated due to low isolation of transmission or reception antennas, because Eberlein is silent as to including such a feedback signal. Specifically, the FEEDBACK block 32 does not add a feedback signal generated due to low isolation of transmission or reception antennas to a predetermined signal as recited in amended claim 1.

FIGURE 1 of Eberlein



Thus, for at least the reasons provided above, Eberlein fails to teach or suggest each element of amended claim 1. Further, the Examiner has not cited and the Applicants have been unable to locate any sections of AAPA and Jun which cure the deficiencies of Eberlein. Thus, the combination of Eberlein, AAPA, and Jun fails to disclose each element of amended claim 1. Accordingly, the Applicants respectfully request reconsideration and withdrawal of the rejection of claim 1 on this basis.

In regards to the rejection of claims 7, 12, and 19 under 35 U.S.C. § 103, these claims have been amended to include elements analogous to those of amended claim 1. For at least the reasons discussed above in relation to amended claim 1, the combination of the AAPA, Jun, and Eberlein, fails to disclose these elements of amended claims 7, 12, and 19. Therefore, amended claims 7, 12, and 19 are not obvious in view of the combination of Eberlein, AAPA, and Jun. Accordingly, the Applicants respectfully request reconsideration and withdrawal of the rejection of claims 7, 12, and 19 on this basis.

In regards to the rejection of claims 2-6, 8-11, 13-18, and 20-32 under 35 U.S.C. § 103, these claims depend from claims 1, 7, 12, and 19, respectively, and incorporate the limitations

thereof. The Examiner's argument assumes that the combination of Eberlein, AAPA, and Jun discloses all elements of claims 1, 7, 12, and 19 which are incorporated in dependent claims 2-6, 8-11, 13-18, and 20-32. However, as discussed above, the combination of Eberlein, AAPA, and Jun does not disclose all the elements of claims 1, 7, 12, and 19. Further, the Examiner has not cited and the Applicants have been unable to locate any sections of Ghosh or Choi which cure the deficiencies of Eberlein, AAPA, and Jun. Therefore, claims 2-6, 8-11, 13-18, and 20-32 are not obvious in view of the combination of Jun, Eberlein, Ghosh, and Choi. Accordingly, the Applicants respectfully request reconsideration and withdrawal of the rejection of claims 2-6, 8-11, 13-18, and 20-32 on this basis.

II. Additional Amendments to the Claims

The Applicants submit additional amendments to claims 3 and 8. These amendments remove elements that were added in the corresponding independent claims. Consequently, these amendments do not add new subject matter to the Application. Accordingly, the Applicants respectfully request entry of these amendments.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes a telephone conference would be useful in moving the case forward, he is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly extension of time fees.

PETITION FOR EXTENSION OF TIME

Per 37 C.F.R. 1.136(a) and in connection with the Office Action mailed on November 18, 2009, Applicants respectfully petition Commissioner for a one (1) month extension of time, extending the period for response to March 18, 2010. The amount of \$65.00 to cover the petition filing fee for a 37 C.F.R. 1.17(a)(1) small entity will be charged to our Deposit Account No. 02-2666.

Respectfully submitted,

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Dated:

3/17/2010

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CERTIFICATE OF ELECTRONIC FILING

I hereby certify that this paper is being transmitted online via EFS Web to the Patent and Trademark Office, Commissioner for Patents, Post Office Box 1450, Alexandria, Virginia 22313-1450, on the date below.

Jessica Huester

Date